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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/673,194	10/12/2000	Minoru Waki	001350	2228

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Armstrong Westerman Hattori  
McLeland & Naughton  
1725 K Street N W Suite 1000  
Washington, DC 20006

EXAMINER
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SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
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1714

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DATE MAILED: 02/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/673,194

Applicant(s)

WAKI, MINORU

Examiner

Callie E. Shosho

Art Unit

1714

# 9-9

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 06 December 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. All outstanding rejections except for those described below are overcome by applicant's amendment and certified translation of the Japanese priority document filed 12/6/02.

The following rejection is non-final in light of the new references applied against the present claims, namely, JP 09255867, the English translation of which was previously unavailable, and Tonogaki et al. (U.S. 5,492,952).

**Claim Rejections - 35 USC § 102**

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 3, and 9 are rejected under 35 U.S.C. 102(a) as being anticipated by JP 09255867.

JP 09255867, an English translation of which is included in this office action, discloses a water-based pigment dispersion wherein pigment is dispersed with self-emulsifying polyurethane containing carboxylic group. After dispersing the pigment, the dispersant is crosslinked with

crosslinking agent, such as aqueous polymer, which reacts with the carboxyl group of the dispersant. The ratio of pigment to dispersant is 0.001: to 2:1 while the ratio of crosslinking agent to dispersant is 0.5:100 to 50:100. It is further disclosed that the dispersion is used as coating for paper, i.e. functions as an ink (claims 1-2, paragraph 7, paragraph 12 (lines 13-14), paragraph 32, paragraph 32 (last paragraph), paragraph 34 (line 45), and paragraphs 41, 49, and 52).

In light of the above, it is clear that JP 09255867 anticipate the present claims.

4. Claims 1, 2-3, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Tonogaki et al. (U.S. 5,492,952).

Tonogaki et al. disclose ink jet ink comprising water-based pigment dispersion wherein 2-12% pigment is dispersed with 0.1-5% acrylic resin containing carboxylic group. After dispersing the pigment, the dispersant is crosslinked with 0.1-5% crosslinking agent, such as aqueous polymer, which reacts with the carboxyl group. The ratio of pigment to dispersant is 0.4 (2/5): to 120:1 (12/0.1) while the ratio of crosslinking agent to dispersant is 0.02:1 (0.1/5) to 50:1 (5/0.1). The acid number of the dispersant is, for example 140 (col.1, lines 8-9, col.4, lines 31-35, col.5, lines 6-14 and 21-24, col.7, line 66-col.8, line 1, col.8, lines 5-16 and 24-26, col.9, lines 27-28, 29-35, and 50-55, col.10, lines 43-51, and example 10).

Tonogaki et al. disclose that the dispersant has weight average molecular weight ( $M_w$ ) of 1,000-30,000, however, there is no disclosure of the number average molecular weight ( $M_n$ ). However, given the relationship between  $M_w$  and  $M_n$ , i.e.  $M_w/M_n \geq 1$ , it is clear that  $M_n$  of the dispersant of Tonogaki et al. will overlap the values presently claimed.

In light of the above, it is clear that Tonogaki et al. anticipate the present claims.

5. Claim 4 is rejected under 35 U.S.C. 102(e) as being anticipated by Fryd et al. (U.S. 6,262,152).

The rejection is adequately set forth in paragraph 2 of the office action mailed 8/6/02, Paper No. 5, and is incorporated here by reference.

6. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Jakubauskas (U.S. 3,980,602).

The rejection is adequately set forth in paragraph 3 of the office action mailed 8/6/02, Paper No. 5, and is incorporated here by reference.

**Claim Rejections - 35 USC § 103**

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 09255867 in view of Carlson et al. (U.S. 6,136,890) and Suga et al. (U.S. 5,604,276).

The disclosure with respect to JP 09255867 in paragraph 3 above is incorporated here by reference.

The difference between JP 09255867 and the present claimed invention is the requirement in the claims of (a) number average molecular weight of the dispersant and (b) acid number of the dispersant.

With respect to difference (a), Carlson et al., which is drawn to ink comprising polyurethane dispersant containing carboxyl group, disclose the use of polyurethane dispersant which has number average molecular weight of 2,000-10,000 and further disclose that if the molecular weight is too low, the dispersant will not contribute to the dispersion and stabilization of the pigment while if the molecular weight is too high, the viscosity of the ink will increase too much which negatively affects the printing of the ink (col.7, lines 13-25).

With respect to difference (b), Suga et al., which is drawn to ink composition, disclose the use of dispersant which has acid number of 50 to 300 and further disclose that if the acid number is too low, the resin becomes insoluble in water while if the acid number is too high, the dispersant is not absorbed on the pigment surface (col.4, lines 22-32).

In light of the motivation for using dispersant with specific number average molecular weight and acid number disclosed by Carlson et al. and Suga et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such dispersant in JP 09255867 in order to produce dispersion with stable dispersed pigment and suitable viscosity, and thereby arrive at the claimed invention.

### **Response to Arguments**

9. Applicant's arguments filed 12/6/02 have been fully considered but they are not persuasive.

Specifically, applicant argues that:

(a) There is no disclosure in Fryd et al. of crosslinking agent such as polymer or oligomer with acryloyl group.

(b) The 1.132 declaration establishes criticality of the presently claimed crosslinking agent.

(c) Jakubauskas does not disclose presently claimed invention.

With respect to difference (a), it is noted that col.6, line 11 of Fryd et al. disclose the use of diacrylate crosslinker which does possess acryloyl group.

With respect to difference (b), applicant's declaration filed 12/6/02 compares pigment dispersion within the scope of the present claims, i.e. comprising crosslinking agent with acryloyl group, with pigment dispersion outside the scope of the present claims but within the scope of Fryd et al., i.e. comprising tetramethylene diisocyanate crosslinking agent. It is shown that the pigment dispersion of the present invention is superior in terms of stability.

However, it is noted that Fryd et al. is used to reject the present claims under 35 USC 102. The declaration is therefore not persuasive because Fryd et al. already disclose crosslinking agent as presently claimed. As cited in MPEP 706.02(e), it is noted that a rejection based on 35 USC 102(e), can only be overcome by (a) persuasively arguing that the claims are patentably distinguishable from the prior art, (b) amending the claims to patentably distinguish over the prior art, (c) filing a declaration under 37 CFR 1.132 showing that the reference invention is not by "another", (d) filing an affidavit or declaration under 37 CFR 1.131 showing prior invention,

or (e) perfecting priority under 35 USC 119(a)-(e) or 120. As can be seen, comparative data is not sufficient to overcome an anticipatory rejection under 102(e).

With respect to argument (c), applicants argue on pages 4-5 of the amendment that in Jakubauskas, the crosslinking agent is used to form a strong film after coating material is coated onto substrate which is technically different from the present invention wherein a crosslinking reaction proceeds maintaining a state of a dispersion. Applicants state that in the present invention, curing reactions occur to form a film after coating is coated onto substrate.

However, given that both the present invention and Jakubauskas disclose forming film after coating, applicant's argument is not understood and the difference between the reference and the present claims is not clear. Clarification is requested.

Further, it is noted that the present claims only require that the resin containing the carboxylic group is crosslinked with crosslinking agent after the pigment is dispersed with dispersant. Given that Jakubauskas does in fact disclose crosslinking after dispersion, it is the examiner's position that Jakubauskas does meet the requirements of the present claims.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 703-305-0208. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

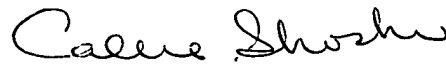
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone numbers for the



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organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Callie E. Shosho  
Examiner  
Art Unit 1714

CS  
February 15, 2003